Libby Asbestos Site, Operable Unit 4
Libby, Montana

Draft Remedial Investigation and Removal Action Work Plan for Riverside Park

August 2003

Remedial Investigation and Removal Action Work Plan

Response Action Contract
for Remedial, Enforcement Oversight, and Non-Time
Critical Removal Activities at Sites of Release or
Threatened Release of Hazardous Substances
in EPA Region VIII

U.S. EPA Contract No. 68-W5-0022

Draft Remedial Investigation and Removal Action Work Plan for Riverside Park Libby Asbestos Site, Operable Unit 4

August 13, 2003

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Contents

Figures

Acronyms

%	percent
<	less than
>	greater than
ASTM	American Society for Testing and Materials
bgs	below ground surface
CDM	CDM Federal Programs Corporation
CFR	Code of Federal Regulations
CSF	close support facility
CSS	contaminant screening study
EPA	U. S. Environmental Protection Agency
ft	feet/foot
GPS	global positioning system
HEPA	high efficiency particulate air
LA	Libby amphibole
MACTEC	MACTEC Federal Programs
NIOSH	National Institution of Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PLM	polarized light microscopy
PM	project manager
pt	point
QA	quality assurance
QC	quality control
RA	removal action
RAC	Response Action Contract
RI	remedial investigation
SAP	sampling and analysis plan
SOPs	standard operating procedures
SUAs	specific use areas
Volpe	John A. Volpe National Transportation Systems Center

Section 1
Introduction

This work plan outlines the site-specific requirements to conduct remedial investigation (RI), and removal action (RA) activities, at Riverside Park (Park Site). This work plan details specific information regarding pre-construction characterization, removal, and restoration activities that will take place at Riverside Park.

CDM Federal Programs (CDM) is providing RI support to Region VIII of the U.S. Environmental Protection Agency (EPA) on the Libby, Montana asbestos project. This work plan covers additional RI activities at Riverside Park. The RI activities for Riverside Park will entail surface and subsurface soil sampling, and visual characterization at the site. All rationale, data quality objectives, quality assurance (QA) procedures, and standard operating procedures (SOPs) from the contaminant screening study (CSS) sampling and analysis plan (SAP) Revision 1 will apply (CDM 2003a).

The U.S. Department of Transportation's John A. Volpe National Transportation Systems Center (Volpe) is providing environmental engineering and contaminant removal support to EPA on the Libby, Montana asbestos project. Volpe, its contractor, CDM, and CDM's subcontractor, MACTEC Federal Programs (MACTEC), will provide specific technical support for the RA activities at the park. RA activities will entail excavation, transportation and disposal of contaminated soils, and subsequent restoration of the site. All project QA and quality control (QC) requirements for measurement reports associated with the RA will be addressed in a future data summary report.

1.1 Objectives

The primary objectives of this project are to (1) identify any additional areas within Riverside Park where vermiculite contamination is present, (2) implement a RA to remove any contamination that poses a threat to human health based on the anticipated use of this land as a recreational area, and (3) ensure that all soils in the park requiring excavation by the city during future renovations are clean and do not pose a health risk to city construction personnel.

This work plan outlines the anticipated scope of work necessary to accomplish the above project objectives in a cost-effective, time-critical manner, using an integrated approach for characterization and cleanup. Accordingly, the remainder of this document will:

1. Utilize available information to form a conceptual understanding of the nature and extent of vermiculite contamination within Riverside Park

2. Develop a field sampling program that will test and refine this understanding and develop clear boundaries for cleanup using cleanup criteria previously established by EPA

3. Provide the guidelines for implementing a dynamic cleanup/sampling program that utilizes observations during cleanup to refine the necessary extent of cleanup

1.2 Site Location and Project Background

Riverside Park is situated on the south side of the Kootenai River just north of the City of Libby, Montana (Figure 1-1). The property is currently owned by the City of Libby and encompasses approximately 4.7 acres. The subject property was formerly owned by W.R. Grace and used as part of their vermiculite export plant. Former W.R. Grace employees have indicated that the company stockpiled and staged vermiculite along the riverbank in this vicinity of the plant. This activity is believed to be the primary contribution source for the vermiculite contamination on the property.

The property was subsequently purchased by the city and converted to a recreational area. The park has also been used by the city during snow removal activities. Over the years, large quantities of snow from various locations in Libby, including the export plant, have been stockpiled within the park. Conceivably as the snow has melted, any vermiculite source materials that had been accumulated with the snow would have been deposited on the ground surface. Snow removal activities are suspected as a secondary source for the vermiculite contamination in the park.

W.R. Grace implemented cleanup activities at the former export plant in 1999. In December 1999, CDM collected confirmation soil samples (Figure 1-2) in order to evaluate whether or not W.R. Graces removal objectives had been met for the former export plant. Eleven surface soil samples along the south side of the access road bordering the former plant and Riverside Park. Two additional surface soil samples were collected inside the park, within 30 feet of the road. Soil samples were submitted for Libby amphibole (LA) asbestos determination by polarized light microscopy (PLM) (National Institution of Occupational Safety and Health [NIOSH] 1994). The analytical results for all samples were non-detect.

The City of Libby initiated renovations to the park in May of 2003 (Figure 1-3). While constructing a new boat ramp a two-inch thick layer of vermiculite, along the west side of the ramp leading down to the water, was discovered. The layer is approximately 8-10 inches below the grass surface and is exposed along the ramp (Figure 1-3). In addition, during site renovations for the picnic areas, overburden material was scraped off the top of the bank west of the new boat ramp and pushed over the bank. This scraping exposed additional contamination in the picnic areas above the bank.

On May 22, 2003 Volpe and CDM personnel conducted a site visit. During that visit surface soil samples were collected along the new boat ramp. Three 5-point composite surface soil samples (0-1 inch) were collected at locations shown in Figure

1-4. The samples were collected in accordance with the Final Sampling and Analysis Plan for the CSS investigation (CDM 2002a) and applicable modifications (CDM 2002b). Soil samples were submitted for LA asbestos determination by PLM (NIOSH 1994). The analytical results for all samples were non-detect. Logbook pages, field sample data sheets, and sample results from the May 22 site visit are located in Attachments 1, 2, and 3.

In conjunction with the May 22 soil sampling, the park was visually inspected for contamination. Visible vermiculite and other apparent asbestos contamination was found in the park and along the banks of the Kootenai River. After inspecting the site, CDM and Volpe covered and fenced off those areas in the park with the highest concentration of visible contamination in order to mitigate the short-term exposure hazard (Figure 1-5). Erosion control fabric and silt fences are also being installed along the riverbank as interim measures until the site is remediated.

1.3 Conceptual Understanding of Contamination Extents

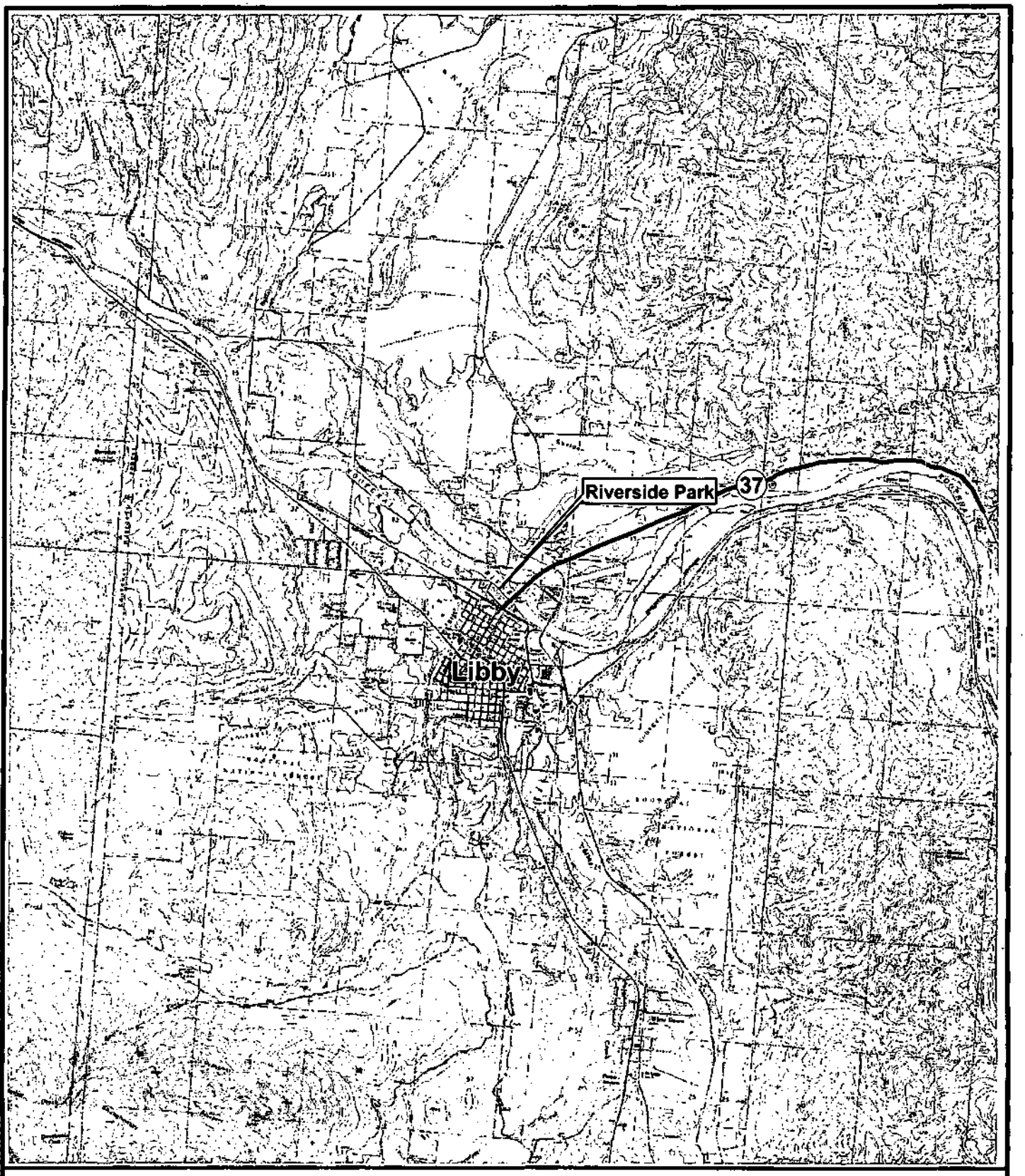
Available site background information and findings from the May 22 property assessment have been used to develop a preliminary interpretation of the nature and extent of vermiculite contamination within Riverside Park. Areas of significant vermiculite contamination are expected to be found nearest the river. Historical operations of the former export plant have resulted in deposition of a thin layer of vermiculite source materials on the top of the riverbank. At this time it is not known if any of the material stockpiled by W.R. Grace included expanded (popped) vermiculite. No popped vermiculite was observed at the site during the May 22 inspection. Presumably, source material was originally staged in various areas throughout the export plant. As material was processed, it was most likely loaded directly into rail cars and transported by train. Accordingly, the majority (if not all) of the source material remaining in the park is expected to be unpopped vermiculite.

The vermiculite layer is believed to be laterally continuous in those areas nearest the river, where W.R. Grace previously stockpiled vermiculite. There is insufficient data to determine the lateral continuity of this vermiculite layer outside of this area, but it is expected to dissipate towards the southwest half of the park, in the direction of the former export plant. The thickness of the vermiculite layer is not expected to exceed 12 inches and is likely directly related to original topographic conditions at the site. When the vermiculite was stockpiled on the site, it filled in any low spots in the riverbank topography. Subsequent staging and movement of material was most likely performed with heavy materials handling equipment (e.g., excavator). This equipment would have removed bulk materials down to the approximate grade of the original surface. Presumably, efforts were made by the equipment operator to minimize the amount of native soils excavated and transported with the vermiculite from one staging area to the next. This resulted in source materials in direct contact with native soils being left on site.

Details on the purchase of the land by the city and subsequent development as a recreation area are not known at this time. At some point during the transition of the

property from an operable export plant into a park, fill material was placed on top of the bank. Most likely, this fill was placed for grading purposes during park development. The vermiculite lens exposed near the new boat ramp is currently buried beneath approximately 12 inches of fill material. The recent renovation activities undertaken by the city entailed scraping of surface soils. In so doing, city workers removed the fill material covering the vermiculite lens in this area of the site, exposing the underlying source material.

Insufficient data is available for assessing the extent of contamination in soils along the riverbank slope. Conceivably, vermiculite materials were inadvertently pushed over the side and down the slope of the bank during export plant operations. Similarly, the recent scraping and subsequent placement of overburden soils along the slope of the riverbank by the city may have resulted in cross contamination of riverbank soils with vermiculite from the picnic areas.



Map Filename: figure1-1RiversideParkSiteLocationMap.mxd

Figure 1-1
Site Location
Riverside Park
Libby, Montana

CDM

Color Photo(s)

The following pages contain color that does not appear in the scanned images.

To view the actual images, please contact the Superfund Records Center at (303) 312-6473.

Figure 1-2
Selected Soil Samples from
the Former Export Plant
Riverside Park
Libby, Montana

Legend

○ Sample Locations (12/99)

N
W E
S

Feet
0 50 100 200

CDM

Mapfilename: Figure1-2CityBoatRamp.mxd

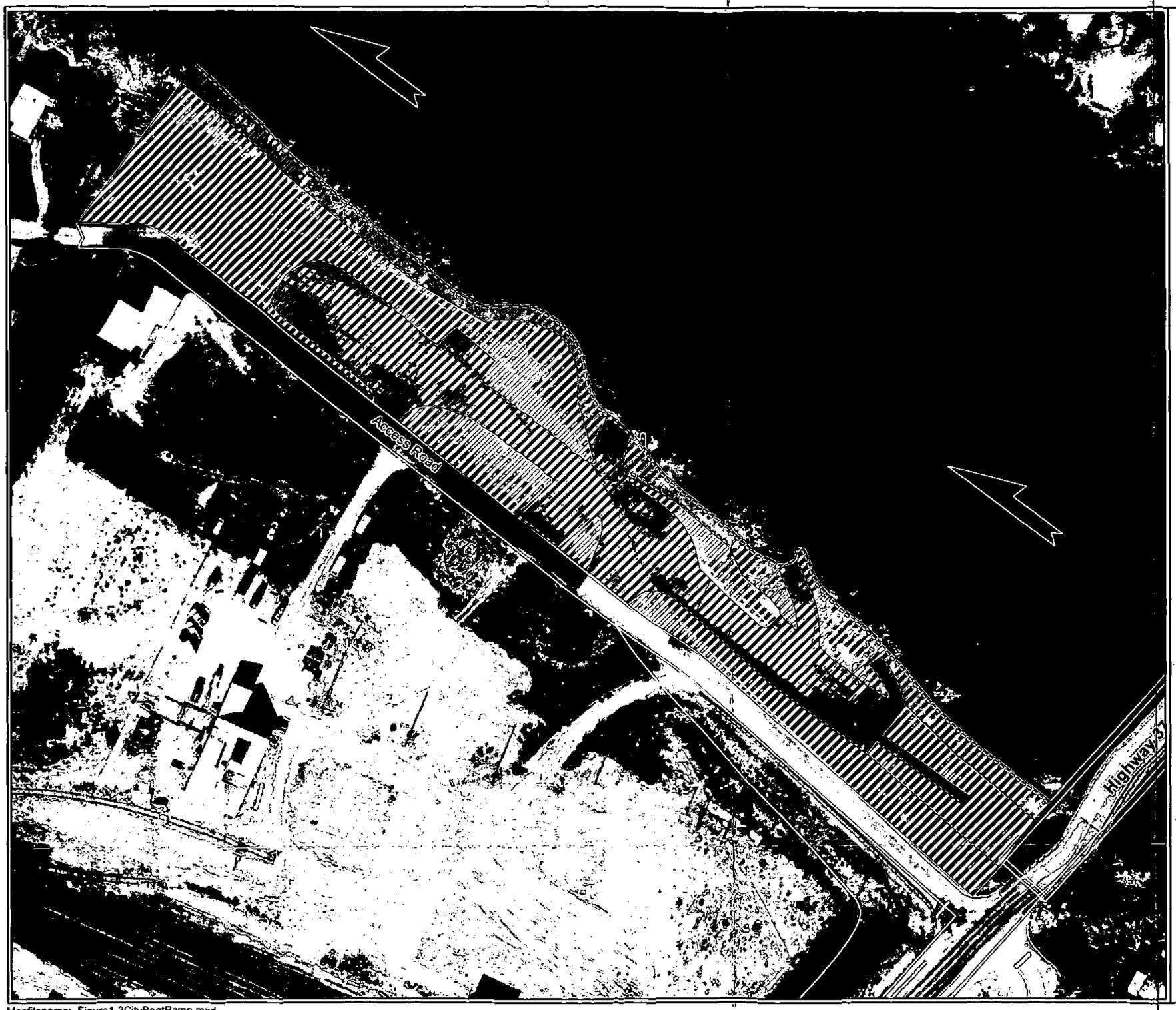


Figure 1-3
Park Renovation Plan
Riverside Park
Libby, Montana

Legend

Land Use Area

- Picnic
- Riverbank
- Road/Parking

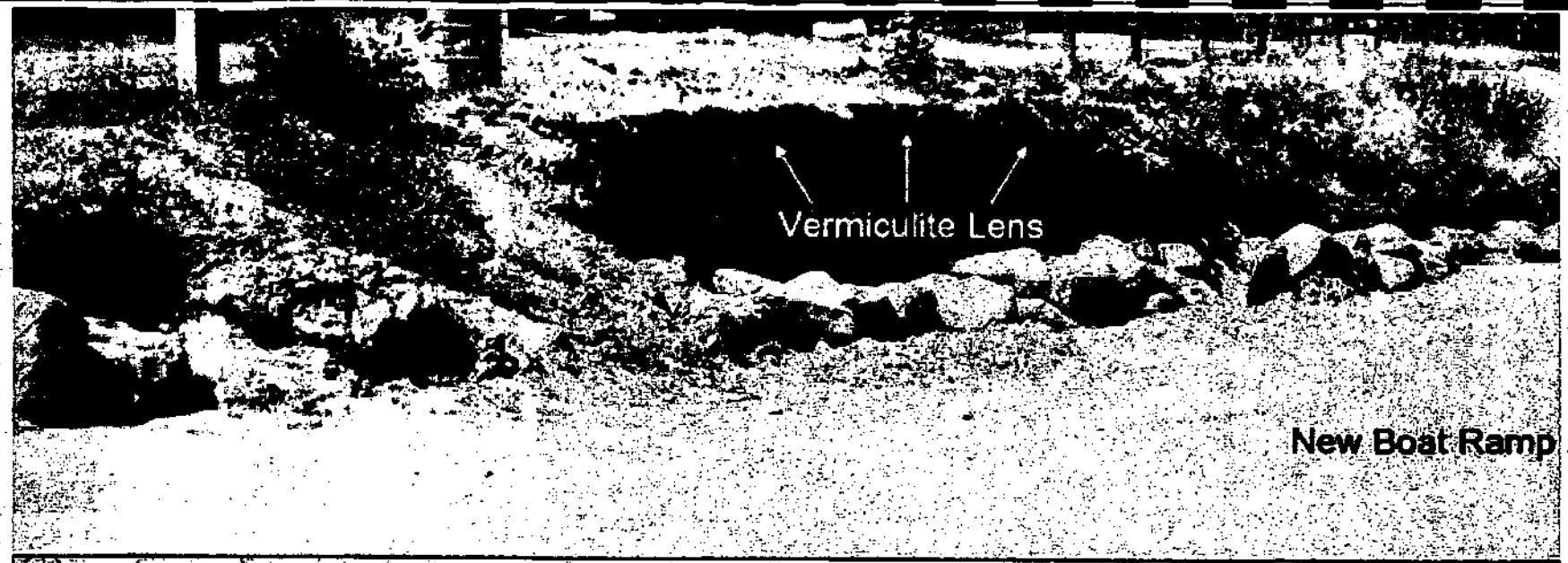
Note: Use area boundaries are approximate. Exact boundaries will be provided by the city as necessary.

N
W E
S

Feet
0 50 100 200

CDM

Mapfilename: Figure1-3CityBoatRamp.mxd



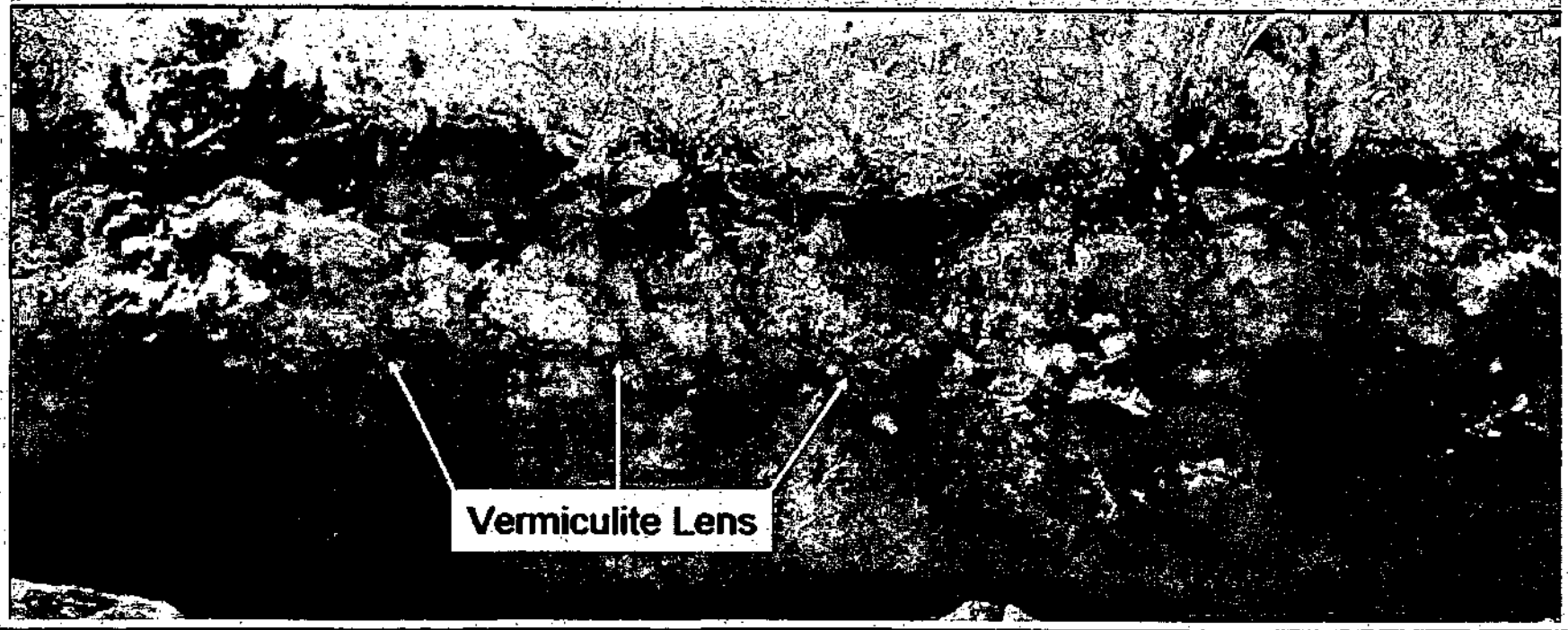


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Figure 1-4

Photographs of Vermiculite Lens
Riverside Park, Libby, Montana

CDM

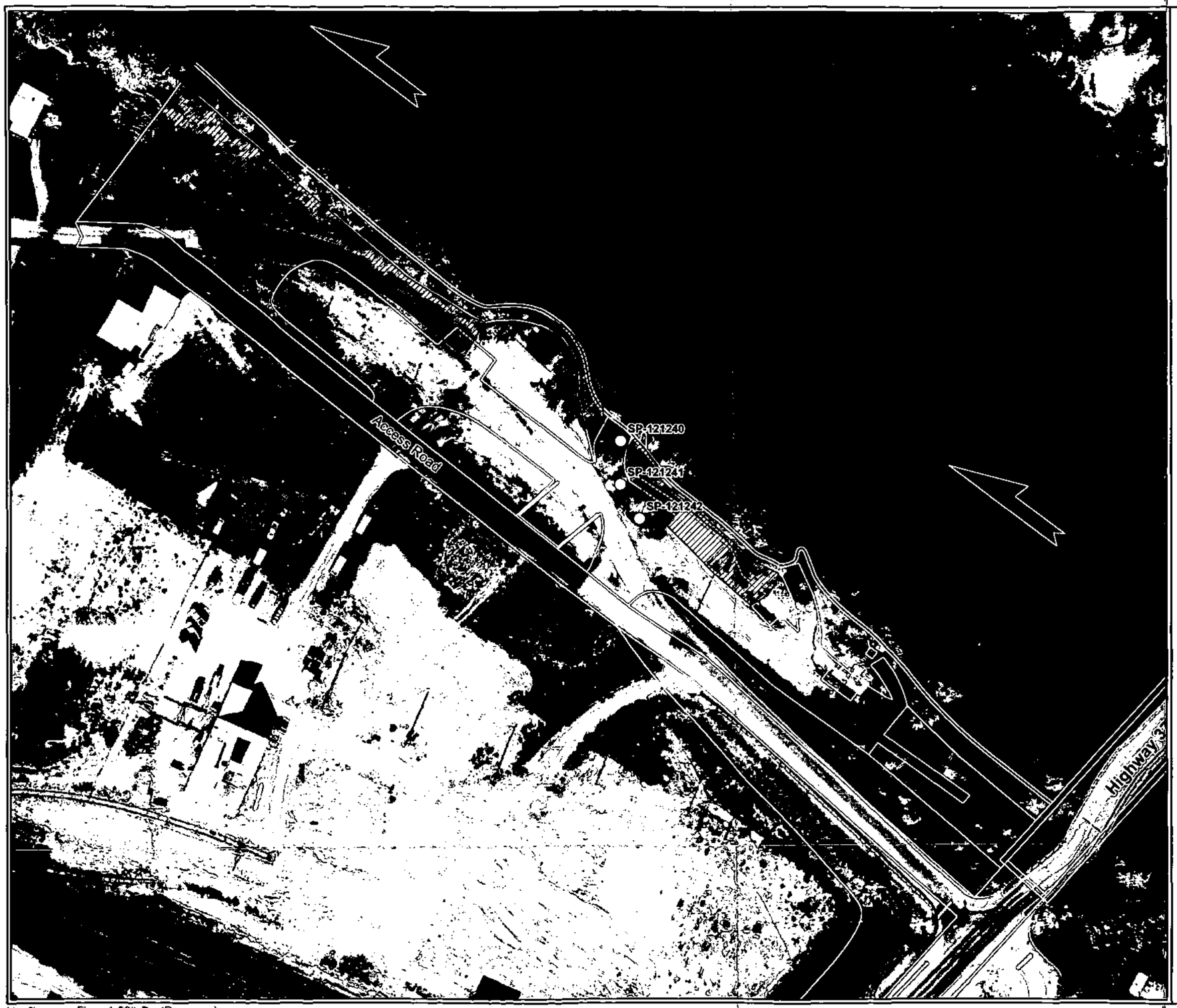


Figure 1-5
Overview of May 22, 2003 Site Visit
Riverside Park
Libby, Montana

Legend

- Sample Locations (5/22/03 Site Visit)
- Tarped Areas

N
W E
S

Feet
0 50 100 200

CDM

Mapfilename: Figure1-5CityBoatRamp.mxd

Section 2
Remedial Investigation

Pre-removal characterization activities at the site will entail a verbal interview with city park personnel, followed by a visual inspection of the property, and surface and shallow subsurface soil sampling in accordance with the CSS protocols. These findings will be used to determine removal objectives for the site, delineate excavation limits of contaminated soils, and develop guidelines for subsequent restoration activities.

2.1 Verbal Interview Concerning Park Site Activities

Dan Thede, Director of Public Services for the City of Libby, will be interviewed by field personnel. The objectives of this interview are twofold:

1. Obtain a summary of land use by the city since the property was purchased from W.R. Grace, including details regarding recent site renovation activities that have resulted in discovery of vermiculite near the boat ramp and above the riverbanks.

2. Collect additional details regarding any ongoing or planned renovations to the park facilities, including: parking lot and roadway surface and compaction requirements, approximate locations of existing and proposed utilities, surface grading needs, vegetation restoration requirements, locations and descriptions of any additional proposed facilities that EPA is not currently aware of. This information will be used to determine the scope and extent of the RA restoration activities.

Field personnel will complete an information field form (IFF) as part of the interview process, which will help assess exposure risks at the site. Additional notes addressing issues relevant to historical operations by the city at the park, current and future land uses, and any removal or restoration concerns will be documented in field notebooks, as appropriate.

2.2 Visual Inspection of Park Site

CDM and Volpe personnel conducted a cursory visual inspection of the park site on May 22, 2003. Those areas that contained gross amounts of visible contamination and thought, in EPA's judgment, to pose a short-term exposure hazard were covered with tarps and fenced off (Figure 1-4). Those areas where vermiculite has been visually identified and covered up will be remediated. Additional characterization activities in these areas of the property are limited to excavation of test pits in order to determine the vertical extent of contamination.

Field personnel will conduct an inspection for visible vermiculite on the remaining non-covered areas of the site. The team will record specific details in the field logbook, on the IFF, and on copies of the available base maps and/or aerial photos for the site. This will include documentation of the locations and depth of visible vermiculite observed during sampling and descriptions of various park items (e.g., picnic tables, barbeque pits, trash receptacles, and utilities) for removal and restoration considerations. The aerial extent of visible surface contamination will be marked (staked and flagged) in the field and surveyed in order to facilitate subsequent removal activities.

2.3 Soil Sampling

The soil sampling process, as discussed in the CSS SAP Revision No. 1, will involve the following steps:

- Locate the predetermined sample locations and select composite subsample locations (Figure 2-1)
- Collect samples from composite locations
- Complete the sample field forms included in Attachment 2 (e.g., record subsample locations) and sketch additional structures, features, etc. not already on the site map
- Decontaminate all non-disposable sampling equipment

2.3.1 Sample Locations and Rationale

Two types of soil samples, subsurface test pit samples and surface soil samples will be collected as part of this investigation. Test pits will be excavated to determine the lateral and vertical extent of the vermiculite lens observed during the construction of the new boat ramp. Surface soil samples will be collected throughout the park and along the riverbank to characterize the nature and extent of contamination in areas where source material is not visibly apparent. Areas with visible vermiculite at the surface will be cleaned up and, therefore, no soil samples will be located in these areas. Previous investigations have identified vermiculite at the surface and in the subsurface. However, it has not been determined that the presence of vermiculite at the surface precludes its presence at depth. Accordingly, test pits will be excavated in areas with visible vermiculite contamination at the surface in order to determine the vertical extent of contamination in the subsurface for removal purposes.

2.3.1.1 Test Pits

Five initial test pit locations will be excavated at 150-foot (ft) intervals, midway between areas of visible vermiculite and the city service road (Figure 2-1), and one additional pit will be excavated in picnic area #4 (six initial test pits, total). These initial test pit excavations will be advanced in areas where there is no surface contamination, and will be used to characterize the extent of the vermiculite lens in

the subsurface. Four secondary test pits will be excavated in the areas covered after the May 22 site inspection in order to determine the vertical extent of vermiculite source materials in those areas with gross surficial contamination. All ten test pit locations were chosen based on their proximity to the lens and other visible vermiculite observed during the May 22 site visit. Once the test pits identified in Figure 2-1 are completed, additional test pits may be excavated to more accurately determine the extent of the lens.

Advancements of additional test pit excavations will be based on visual determinations. If visible contamination is present in one of the six initial test pits, an additional pit will be excavated 50 ft away (towards the road) in an attempt to delineate the boundary between visibly and non-visibly contaminated soils in the subsurface. If no visible contamination is present, a test pit will be excavated 30-ft in the other direction (closer to the river). The 150-ft space between the initial line of test pits will be delineated, as necessary, with additional test pits spaced in 75-ft increments. The 50- and 75-ft spacing for additional test pits is provided as guidance, actual spacing may vary based on the professional judgment of the pre-removal characterization team.

2.3.1.2 Surface Soil Samples

Surface soil samples will be collected within the park and along the riverbank. Sample locations within the park will be located at 150-ft intervals, as shown on Figure 2-1. These sample locations were chosen to provide a general idea of the nature and extent of contamination in areas where there is no visible contamination.

Verbal interviews conducted during the May 22 site visit revealed that, during park renovation activities, some overburden soils were scraped off the park surface and pushed over the top of the bank. These actions apparently exposed the vermiculite lens in soils beneath the picnic area. These renovation activities may have also inadvertently placed contaminated soils along the riverbank. Samples will be collected along the riverbank in order to characterize the extent of vermiculite contamination in these soils as a result of renovation activities. Riverbank sample locations are identified on Figure 2-1 at 150-ft intervals extending the length of the park.

Additional samples may be collected based on observations made in the field. If visible contamination is observed within the representative sample area for the proposed surface sample locations, the sample location will be relocated as necessary in order to evaluate LA asbestos concentrations in those soils immediately adjacent to the visibly contaminated areas. The ultimate surface soil sampling objective is to collect enough samples for laboratory analysis to characterize all non-visibly impacted areas of the park. The field team will use professional judgment to determine the location and frequency of any additional surface soil samples within the park and along the riverbank.

2.3.2 Sample Collection

All soil samples will be collected in accordance with procedures identified in the CSS SAP Revision 1 (CDM 2003a). QC samples will be collected in accordance with the CSS SAP Revision 1, excluding equipment blanks which will be collected at a rate of one per day (CDM 2003a).

2.3.2.1 Test Pit Soil Samples

Test pits will be excavated using a backhoe to a depth of three feet. Subsurface soils will be visually characterized and logged, which will include descriptions, depths, and types of various subsurface soil horizons observed during excavation. If visible vermiculite is found, the depth and vertical extent of the vermiculite will be noted in a logbook and a discrete soil sample will be collected 6 inches below the lower extent of visible contamination. If no visible vermiculite is found, a sample will be collected at the 3-ft interval. The aerial extent of visible subsurface contamination will be marked (staked and flagged) in the field and surveyed in order to facilitate subsequent removal activities.

2.3.2.2 Surface Soil Samples

Surface soil samples will be collected from both the park and along the riverbank along the north side of the park. The approximate locations of these samples are provided in Figure 2-1.

Surface soil samples will extend from the surface to approximately 6 inches below ground surface (bgs). All surface soil samples will consist of 5-point (pt) composites. The park composite samples will be comprised of a center subsample and four additional subsamples approximately 25-ft on each directional side of the center subsample (i.e., north, south, east, and west). The riverbank composite samples will consist of a center subsample located at the midpoint of the bank (i.e., halfway between the high water elevation of the river and the top of the bank) and four additional subsamples approximately 10-ft on each directional side of the center sample (i.e., above, below, left, and right).

The objective of sample collection along the riverbank is to characterize all non-visibly contaminated soils. If visible vermiculite is observed at any of these pre-determined sampling locations, it will be noted in the field logbook and the location will be moved or deleted, as appropriate. Sampling teams will use professional judgment to determine the new sampling location.

2.3.2.3 Finding Sample Locations

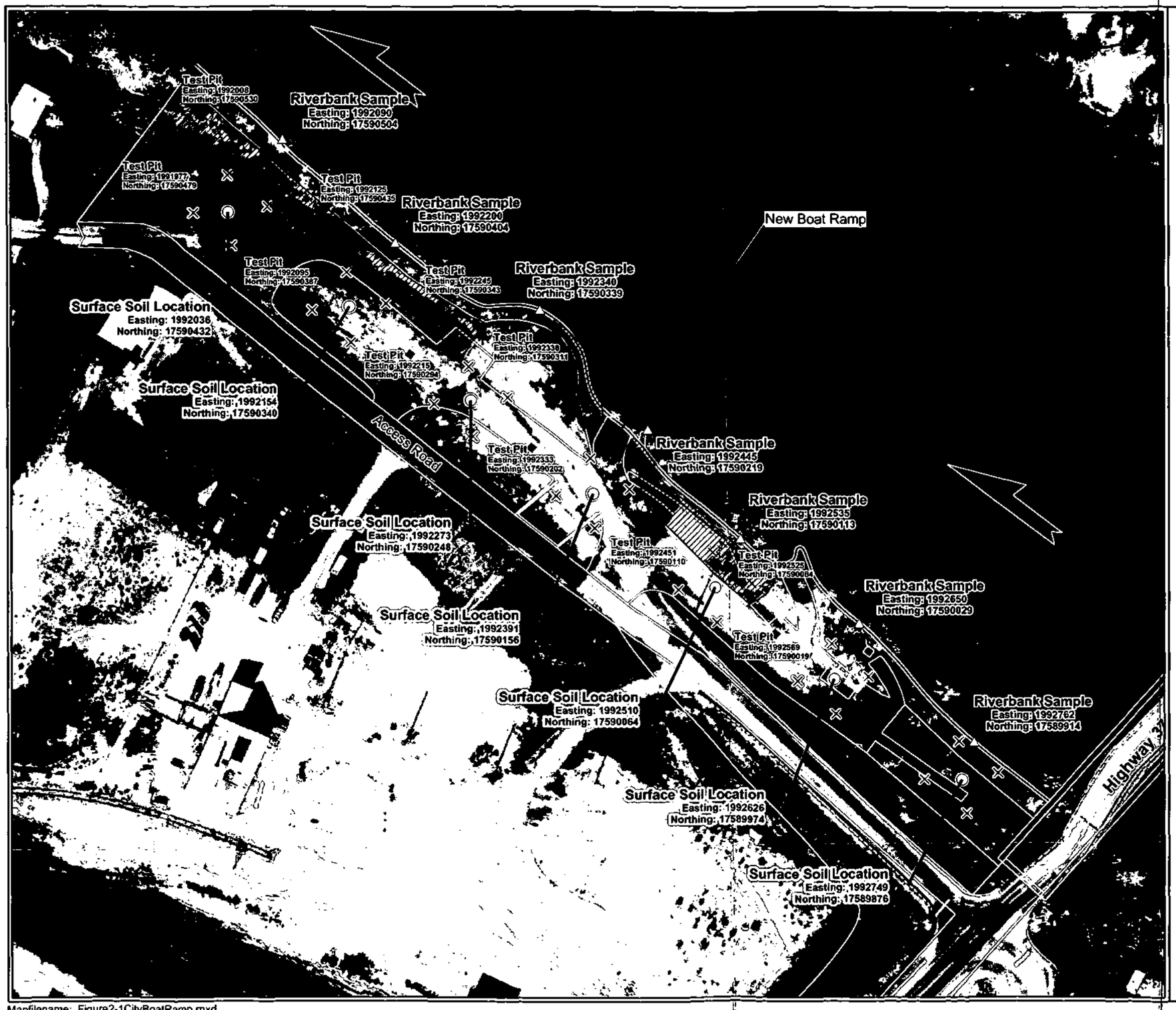
For each test pit and surface soil sampling location presented in Figure 2-1, coordinate sets will be located using the navigation function of the global positioning system (GPS) equipment. Once located, the coordinates will be QC checked by a second field member. If the sample location needs to be moved, the new coordinates will be recorded. This location will be considered the new center subsample location for the other subsample areas.

2.3.3 Field Form Completion and Feature/Structure Sketch

For each sample collected, a field sample data sheet for soil (Attachment 2) will be completed. Each form will identify the personnel collecting the samples, sample identification numbers, and the location of subsamples, and will be completed in accordance with SOP CDM-LIBBY-03, Completion of Field Sample Data Sheets and Addendum No. 3. The sample identification number associated with the sample point will be in the form of CS-######. For each sample collected, a GPS point will be recorded from the center location of the subsamples. The other subsample locations will be identified using a compass and measuring instrument. For each of these non-center subsample locations, the distance and direction from the center location will be recorded. Any obstacles or reasons for movement, or deletion of a sample or subsample, will be recorded on the field form. Additionally, any structure or other relevant feature (e.g., building, pathway, etc.), not already on the site figures, will be sketched onto a copy of the site figure or sample form.

2.3.4 Decontamination

All decontamination will be conducted in accordance with the CSS SAP Revision 1 (CDM 2003a). All non-disposable sampling equipment will be decontaminated between sample locations but will not be decontaminated between subsample locations.



Mapfilename: Figure2-1CityBoatRamp.mxd

Figure 2-1
Sample Location Map
Riverside Park
Libby, Montana

Legend

- Surface Soil Sampling Point
- Riverbank Sample
- Surface Soil Subsample Locations
- Test Pit
- Tarped Areas

Note: Actual sample locations subject to change based on field observations and preliminary investigation findings. Use area boundaries are approximate. Exact boundaries will be provided by the city as necessary.

N
W E
S

Feet
0 50 100 200

CDM

Section 3
Removal Action

Removal action activities will entail excavation of contaminated soils from within Riverside Park based on removal criteria previously established by the EPA for residential properties in Libby, Montana. These criteria have been used to establish removal objectives for this project:

All detectable asbestos will be removed from the surface, and from within the top 12 or 18 inches of soil, depending on the anticipated land use.

Soils containing substantial amounts of visible vermiculite beyond the 12 to 18 inch excavation, up to 3-ft bgs, will be removed. If significant amounts of visible source materials are still present at 3-ft bgs, CDM oversight personnel will evaluate the feasibility of deeper excavation based the degree of contamination and potential exposure risks.

All soils below 12-18 inches, up to 3-ft bgs, having LA asbestos concentrations greater than (>) one percent (%) will be removed. If soils below 3-ft bgs contain > 1% LA asbestos, CDM oversight personnel will evaluate the feasibility of deeper excavation based the degree of contamination and potential exposure risks.

Park renovation activities will be considered to ensure that no city personnel are exposed to asbestos containing soils during anticipated site activities. Excavation depths will be adjusted (increased), as necessary, to ensure future excavation activities do not encounter any contaminated soil.

Park renovation activities will also be considered during evaluation of removal depths. All removal-depth determinations will be evaluated based on the proposed final grade of the park surfaces. If the proposed grade is lower than existing grade, removal depth requirements will be increased accordingly. However, excavation depth requirements will not decrease if the proposed grade is higher.

The RI activities will be used to determine the initial excavation limits for the RA based on the above removal objectives. Additional soil samples will be collected during excavation in order to modify excavation limits, as appropriate, and verify that removal objectives are achieved. These soil samples will be collected in accordance with procedures identified in the CSS SAP Revision 1 (CDM 2003a).

Excavated soils will be handled and disposed of in accordance with protocols previously established for the residential cleanup program. Anticipated restoration activities at Riverside Park will entail backfilling of excavated areas and may include seeding and planting, where appropriate. Restoration determinations will be based on potential exposure scenarios and anticipated land use requirements by the City of Libby. Protocols for removal and restoration activities encompassed in this RA are detailed in the sections that follow.

3.1 Pre-Construction Meeting

Prior to RA activities, a pre-construction meeting will be held to discuss removal and restoration activities with the city. Representatives from Volpe, CDM, and the cleanup/construction contractor will attend the meeting. Meeting attendees will review the planned removal and restoration activities and discuss any potential concerns at this time. The CDM Community Involvement Coordinator (CIC) will produce a summary of the pre-construction meeting minutes, and will identify any concerns discussed during the meeting and document the mutually agreed upon resolutions. All parties (City of Libby, Volpe, CDM, and the cleanup/construction contractor) will have the opportunity to review and comment on the meeting minutes before removal activities begin. If changes in the remediation activities necessitate any deviation from this work plan, or the pre-construction meeting minutes, an addendum to meeting minutes will be produced by the CIC and subsequently approved by the city and representatives from Volpe, CDM, and the cleanup/construction contractor.

3.2 Mobilization

The cleanup/construction contractor is scheduled to mobilize to the site in September of 2003. Mobilization will include establishment of temporary construction and decontamination facilities at the park, and enhancement of existing erosion controls, as necessary.

The cleanup/construction contractor will coordinate with the city and local utility companies in order to identify, mark, and temporarily shut-off any utility lines within the excavation areas before excavation commences. The cleanup/construction contractor will maintain engineering drawings that indicate location of service lines and the means of their control.

Temporary chain link fencing will be installed, as necessary, in order to control access to the site during removal and restoration activities. Fencing will include gates to permit access/egress for vehicles and equipment working on site during work hours. Gates will be locked at all times when removal activities are not being performed.

The cleanup/construction contractor will provide a temporary source of water for complete personnel and equipment decontamination needs and for dust suppression activities.

Portable toilets for male and female workers and agency personnel will be staged in the support zone in a manner requiring workers to exit through personnel decontamination zones in order to use these facilities. The number of toilet seats and urinals will be in accordance with the requirements of 29 Code of Federal Regulations (CFR) 1910.120(n)(3)(1). Portable toilets will be emptied and cleaned, and liquids, disinfectants, paper, etc. replaced or resupplied every other day during removal activities. The cleanup/construction contractor will provide cleaning services and rubbish removal on a daily basis.

Once excavation lines have been demarcated and utilities have been identified, the removal contractor will begin setting up the exclusion zone. The CDM oversight personnel will advise the cleanup/construction contractor on placement of the exclusion zone based on previous sampling results and site investigations. The exclusion zone will encompass the entire contaminated area, and will include selected non-contaminated areas adjacent to the excavation area in the event the cleanup/construction contractor needs to "trail" or "chase" contamination beyond the exclusion zone. A 6-ft high chain link panel fence covered with polyethylene wrap will be erected to enclose the exclusion zone.

The cleanup/construction contractor will provide personnel decontamination facilities adequate for employees to change clothes, shower, and redress throughout the duration of the project. Personnel decontamination facilities will meet all applicable Occupational Safety and Health Administration (OSHA) requirements. Vehicle decontamination facilities will be of sufficient size to thoroughly wash down the largest piece of equipment used on the site. Decontamination facilities will be constructed in an area approved by the CDM oversight representative.

The construction/cleanup contractor will install additional erosion controls, consisting of staked hay bales and silt screen in locations approved by the CDM oversight representative before excavation activities are initiated at the site.

3.3 Removal Activities

Removal activities will entail protection of existing park facilities, decontamination and temporary displacement of removable park items; and excavation, transportation, and disposal of contaminated soil. Excavation limits will be delineated based on findings from the pre-remediation characterization efforts at the park. Decisions regarding protection or removal of park facilities and/or items will be made during the pre-construction meeting. Removal activities are detailed in the sections that follow.

3.3.1 Protection of Facilities and Removal of Park Items

The park contains a variety of facility installations and items aimed at supporting recreational activities at the site, including a pump house, dry well and water filling station; picnic tables, trash receptacles, and restroom facilities; boat ramps and parking areas. Locations and detailed descriptions of these and any additional items (fences, signage, power/lighting/and communication utilities) will be identified

during pre-remediation activities. The pre-removal characterization team will generate a sketch that will depict those items requiring protection and those requiring temporary displacement during removal activities. This list will be reviewed, modified as appropriate, and finalized during the pre-construction meeting.

Any items located within contaminated areas of the park that are not permanently installed (trash receptacles, picnic tables, etc.) will be temporarily dismantled and/or removed in order to facilitate access to contaminated soils. All surfaces of the item in contact with contaminated soil will be thoroughly decontaminated and cleaned with water. After cleaning, all temporarily displaced items will be stored on polyethylene sheeting in a designated area outside of the exclusion zone for the duration of removal activities.

To the extent feasible, permanently installed items (restroom facilities, utilities, etc.) located within the contaminated areas of the site will be left in place during excavation activities. All items left in place will be protected, as appropriate, to prevent damage during removal activities. Any items damaged during excavation, backfill, or restoration activities will be repaired by the cleanup/construction contractor after remediation activities are complete. Feasibility concerns regarding the protection, demolition, replacement, or temporary removal of subject items will be discussed by Volpe, the removal contractor, CDM oversight personnel, and city park personnel during the pre-construction meeting

All trees that are located within the excavation limits, and are in areas designated by the city for renovation as a parking lot or roadway area, will be removed. The determination to protect or remove trees located in all other areas of the park will be based on tree maturity. Trees located within excavation limits that are greater than or equal to 6 inches in diameter, as measured at a point 4 ft above the ground surface, will be protected from damage during soil excavation, backfill and restoration activities. Trees less than 6 inches in diameter will be cut into pieces of manageable size and stockpiled on site, at locations determined by the CDM oversight representative. All tree cuttings and branches will be disposed of in the landfill. Stumps of all cut trees will be subsequently excavated and disposed of along with the contaminated soil at the mine. The number, type, and general location of any trees removed will be tracked by the cleanup/construction contractor for subsequent restoration considerations.

3.3.2 Soil Excavation

Excavation and removal of soils will be based on visual observations of vermiculite within the soil matrix and analytical determinations of LA asbestos concentrations in soil. These cleanup guidelines are consistent with the criteria in use for residential cleanups.

Minimum excavation limits are depicted on Figure 3-1 and correspond to those areas of the site that were covered up and fenced off by the EPA in May 2003. Presumably, the lateral extent of these excavation limits will change based on findings from the RI

activities. The lateral extent of visible vermiculite contamination will be demarcated in the field during pre-removal characterization activities. The excavation limits will change accordingly, based on visual observations. Soil sample results will be used to refine these excavation limits even further based on evaluation against the EPA's removal objectives for this project. Excavation boundaries will be extended further, as appropriate, to include soils with detectable concentrations of LA asbestos. The revised excavation limits will be demarcated in the field and surveyed before excavation activities commence.

Once excavation is underway, excavation limits are subject to further changes based on encounters with visible vermiculite in the subsurface and confirmation soil sampling. Additional excavation considerations have been identified based on anticipated renovation activities at the park by the city. Planned Riverside Park improvements are depicted on Figure 1-2. This figure shows the site sectioned into three types of use areas based on the city's renovation plan. Use types include: picnic areas, parking and roadway areas, and riverbank areas.

3.3.2.1 Picnic Area Soil Excavations

Picnic areas are considered specific use areas (SUAs). SUAs are locations having increased exposure risks based the type and duration of activities that may be undertaken within these areas. Visitors to the park will presumably spend the majority of their time on site within the picnic areas. Conceivably, the anticipated types of recreational activities within the picnic areas could present increased exposure risks to park visitors.

The minimum excavation depth for soils requiring removal from the picnic areas will be 18 inches in those areas where the vermiculite lens has been confirmed at depth. Those areas where visible contamination is only present at the surface will be scraped to remove the top 6 inches of soil.

After initial removal of contaminated soils, the excavation will be visually inspected to determine the need for additional excavation. Additional excavation will be performed only at the direction of the CDM oversight representative. If gross visible vermiculite is still observed in the excavation, the CDM oversight representative will direct the cleanup/construction contractor to excavate an additional 6 inches of soil, until visible vermiculite is no longer observed, or until a maximum excavation depth of 36 inches is reached. Once all visibly contaminated soils have been removed, the CDM oversight representative will conduct confirmation sampling to verify final excavation limits have been reached and removal objectives have been met.

Tree removal and protection criteria will be based on tree size/maturity, as described in Section 3.3.1. Where excavation around or beneath a tree is necessary, the minimum excavation depth of 18 inches will be maintained, as necessary, up to the drip line of any tree requiring protection during removal activities. Within the drip line, the top 6 inches of contaminated soil will be excavated using a vacuum excavation truck. If gross visible vermiculite is still observed after excavating the top 6 inches, the cleanup/construction contractor will continue to excavate until all gross

contamination has been removed. If the tree inhibits access to grossly contaminated soils, the tree may be removed in order to facilitate removal of contaminated soils, as necessary. Any subsequent tree removal determinations, involving trees greater than 6 inches in diameter, will be made by the CDM oversight representative. Additional excavation beyond 6 inches beneath the trees will only be performed at the direction of the CDM oversight representative and will be performed in a manner that will be protective of the tree's root system.

A preliminary estimate of the amount of soil requiring removal within the picnic areas is approximately 832 cubic yards. This estimate is based on the minimum excavation limits depicted on Figure 3-2, and the assumption that the average excavation depth within the picnic areas will be 18 inches. The excavation areas will likely be extended based on additional sampling and visual observations. Accordingly, actual excavation quantities will likely increase.

3.3.2.2 Parking and Roadway Soil Excavations

Removal of soils from parking and roadway areas will be based on similar criteria used for driveways under the EPA's residential cleanup program. At this time it has not been determined how the city plans to re-surface these areas during their planned renovation activities. Different re-surfacing options present the need to use different removal objectives.

Parking and roadway areas that will be surfaced with soil and/or gravel mixtures will be excavated to a minimum depth of 18 inches. Those areas that will be paved with concrete and/or asphalt will be excavated to a minimum depth of 12 inches. Areas where visible contamination is only present at the surface will be scraped to remove the top 6 inches of soil.

Additional excavation beyond the minimum excavation/scraping depth will be performed only at the direction of the CDM oversight representative. If gross visible vermiculite is observed in soils at depth, the CDM oversight representative will direct the cleanup/construction contractor to excavate an additional 6 inches of soil, until visible vermiculite is no longer observed, or until a maximum excavation depth of 36 inches is reached. Once all visibly contaminated soils have been removed, the CDM oversight representative will conduct confirmation sampling to verify final excavation limits have been reached and removal objectives have been met.

All trees located within the parking and roadway areas of the site will be removed prior to excavation. Any excavation to remove stumps at depths beyond the contamination-based excavation limits will only be performed at the direction of the CDM oversight representative. Any stumps or remaining tree debris encountered during excavation will be removed and disposed of with the excavated soil.

A preliminary estimate of the amount of soil requiring removal within the parking and roadway areas is approximately 69 cubic yards. This estimate is based on the minimum excavation limits depicted on Figure 3-2, and the assumptions that; (1) all parking and roadway areas will be resurfaced with gravels, and (2) excavation

depths within the parking and roadway areas will not exceed 18 inches. The excavation areas will likely be extended based on additional sampling and visual observations, so this estimate of excavation quantities will likely increase.

3.3.2.3 Riverbank Soil Excavations

Removal considerations for riverbank soils are based on the SUA criteria in use for the residential removal program. Preliminary understanding of site conditions indicates that the riverbank is sloped at approximately a 1:1 slope within the park. While this slope naturally limits the amount of recreational activity along the riverbank, it does not prohibit pedestrian access between the picnic areas and the Kootenai River. Given the relatively steep slope, riverbank soils are more prone to disturbance as pedestrians traverse the bank surfaces. As such, riverbank soils are being considered SUAs.

Given the relatively steep slopes, initial soil excavation of riverbank soils will be based primarily on visual observations and will be limited to the top six inches of soil in order to minimize disturbance to the riverbank as much as possible. If no visual vermiculite is present, but excavation is deemed necessary based on pre-removal characterization efforts, initial excavation of non-visibly impacted soils will be limited to the upper 6 inches of soil. Additional excavation beyond the 6 inch depth will be performed only at the direction of the CDM oversight representative. If gross visible vermiculite is observed in soils at 6 inches, the CDM oversight representative will direct the cleanup/construction contractor to excavate an additional 6 inches of soil, until visible vermiculite is no longer observed, or until a maximum excavation depth of 36 inches is reached. Once all visibly contaminated soils have been removed, the CDM oversight representative will conduct confirmation sampling to verify final excavation limits have been reached and removal objectives have been met.

Tree removal and protection criteria will be based on tree size/maturity, as described in Section 3.3.1. Where excavation around or beneath a tree is necessary, the minimum excavation depth of 18 inches will be maintained up to the drip line of any tree requiring protection during removal activities. Within the drip line, the top 6 inches of contaminated soil will be excavated using a vacuum excavation truck. If gross visible vermiculite is still observed after excavating the top 6 inches, the cleanup/construction contractor will continue to excavate until all gross contamination has been removed. If the tree inhibits access to grossly contaminated soils, the tree may be removed in order to facilitate removal of contaminated soils, as necessary. Any subsequent tree removal determinations, involving trees greater than 6 inches in diameter, will be made by the CDM oversight representative. Additional excavation beyond 6 inches beneath the trees will only be performed at the direction of the CDM oversight representative and will be performed in a manner that will be protective of the tree's root system.

A preliminary estimate of the amount of soil requiring removal from the riverbanks is approximately 77 cubic yards. This estimate is based on the minimum excavation limits depicted on Figure 3-2, and the assumptions that the average excavation depth along the riverbank will not exceed 6 inches. The excavation areas will likely be

extended based on additional sampling and visual observations, so this estimate of excavation quantities will likely increase.

3.3.2.4 Confirmation Soil Sampling

CDM oversight personnel will collect confirmatory samples after soil has been excavated to the revised excavation limits. Generally, a confirmation sample will consist of a five-point composite (five subsamples submitted as one sample) surface (0 to 2 inches) soil sample collected from excavated surfaces in accordance with the Phase 1 Sampling and Analysis Plan for the Libby Asbestos Project (EPA 2000).

Confirmation samples will be collected at an approximate rate of one per 250 square feet (ft^2); however, professional judgment will be used to determine the exact locations and frequency of sample collection required to confirm contamination removal in each excavation area. Sample locations will be documented by CDM oversight personnel with GPS coordinates and elevations. All confirmation samples will be submitted to the onsite laboratory for analysis of LA asbestos by PLM (NIOSH 1994) with quick (i.e., 6 hour) turnaround time. The excavated area is deemed clean if analytical results from the representative confirmation samples are nondetects or less than (<) 1% LA asbestos.

3.3.3 Transportation and Disposal

Contaminated material will be excavated and live-loaded directly into trucks on the property. Prior to departing the property, trucks will have tarps secured over the beds and will be decontaminated. Trucks will employ positive air pressure high-efficiency particulate air (HEPA) filter systems. This method will focus on minimizing public contact by establishing public thoroughfare rerouting, a "buffer zone" for contingency and monitoring purposes, and restricted access corridors. Only authorized personnel will operate the mobile equipment. The cleanup/construction contractor will ensure that all operators are OSHA 40-hour trained (Hazardous Waste Operations training as per 29 CFR 1910.120) and comply with all requirements under this standard. Contaminated soils will be disposed of at the mine.

3.3.4 Surveying

A baseline survey of the park will be performed prior to initiating remediation activities. The baseline survey will document preliminary excavation limits and identify locations of those items requiring protection or displacement during excavation, backfilling, and restoration activities. The baseline survey will also establish physical control points for use during earthwork related remediation activities, and will include topographic details sufficient for verifying excavation depths and removal quantities throughout excavation.

Once excavation is complete, final excavation limits will be surveyed to document lateral extents and depths of the removal activities

3.3.5 Decontamination and Dust Suppression

Items requiring temporary relocation from the site will be decontaminated before being placed outside the exclusion zone. Construction equipment such as backhoes, excavators, and trucks will be decontaminated prior to leaving the project work site. Decontamination of equipment and temporarily displaced park items will entail washing with water to remove all visible signs of vermiculite, soil, and mud from affected surfaces.

Cleanup/construction and CDM oversight personnel will be required to decontaminate themselves before exiting the work zone and entering the exclusion zone. Personnel decontamination will entail doffing of protective clothing, showering, and dressing in a facility provided by the cleanup/construction contractor. All decontamination water will be collected for filtration and/or disposal in accordance with residential cleanup program protocols (Volpe 2002).

Dust suppression procedures will be implemented during removal activities to prevent asbestos contaminated dust from migrating off the removal action site. All excavations, embankments, stockpiles, haul roads, permanent and temporary access roads, waste staging and storage areas, stabilization material handling areas, and other work areas may cause a dust hazard to others. The cleanup/construction contractor will use water tankers with power spray units for dust control and a spray wash sprinkler for dust abatement when loading the soil. Sprinkling will be implemented, as necessary, to keep the disturbed areas damp at all times, using water trucks and/or water hoses and sprinklers. Dust control will be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

Visual observations and air monitoring will be relied upon throughout removal activities for monitoring the effectiveness of the cleanup/construction contractor's dust suppression techniques. All dust suppression and monitoring will be performed in accordance with protocols in use for the residential cleanup program (Volpe 2002).

3.4 Site Restoration

Restoration activities will occur within all areas of Riverside Park affected by excavation activities. Preliminary excavation limits within anticipated park use areas are depicted on Figure 3-1; however these limits are subject to change based on pre-excavation characterization efforts and confirmation oversight determinations made throughout removal activities.

Restoration efforts will be initiated after all contaminated soil has been removed from the site. All exterior restoration efforts will employ "replace in kind" methods. That is, any contaminated material removed (e.g., soil, vegetation, recreation and/or park related items, etc.) during soil excavation will be replaced with items similar to those removed.

All temporarily displaced items will be returned to their original position and location within the park.

3.4.1 Backfilling and Compaction

Backfill material shall meet the technical requirements specified for the residential cleanup program (CDM 2003c). There are three categories of backfill material that will be used at the site. Material types and descriptions are as follows:

Topsoil; Topsoil will consist of surficial soil horizon materials, and will not contain stones, roots, sticks, or other non-soil materials larger than 1 inch in the largest dimension. Topsoil will meet all gradation, chemical, and nutrient requirements established by the government (CDM 2003c).

Common Fill; Common fill will consist of mineral soil substantially free from organic materials, loam, wood, trash, and other objectionable materials which may be compressible or which cannot be properly compacted. Common fill will not contain any stones larger than 4 inches in the largest dimension and will meet gradation specifications established by the government (CDM 2003c). Common fill will have a liquid limit less than 35 and a plasticity index less than 10.

Structural Fill; Structural fill for use as gravel parking areas, gravel roads and sub-base for asphalt and concrete boat ramps and other paved areas will consist of an angular, hard, durable, processed, crushed, gravel conforming to the requirements of the State of Montana Department of Transportation standard 701.02.5 Crushed Base Course Type "B", Grade 2. Structural fill will have no particles larger than 1 ½ inches in the largest dimension and will conform to the gradation specifications established by the government (CDM 2003c)

Placement and compaction requirements are discussed in the context of specific restoration areas within the park.

3.4.1.1 Picnic Areas

Excavations located within the picnic areas of the park will be backfilled with common fill and compacted to within 6 inches of the finished grade. Common fill will be placed in layers, not to exceed 12 inches loose measure, and compacted to at least 90% of the maximum dry density as determined by American Society for Testing and Materials (ASTM) laboratory test D1557. Topsoil will be placed in the remaining 6 inches of the excavation in accordance with government specifications (CDM 2003c), which include requirements for subgrade surface preparation, disking and/or harrowing, fertilizer amendments, and compaction.

3.4.1.2 Riverbank Areas

Excavated areas along the riverbank will be backfilled with common fill and compacted to within 6 inches of the finished grade. Common fill will be placed in layers, not to exceed 12 inches loose measure, and compacted to at least 90% of the maximum dry density. Topsoil will be placed in the remaining 6 inches of the excavation in accordance with government specifications (CDM 2003c), which include requirements for subgrade surface preparation, disking and/or harrowing, fertilizer amendments, and compaction.

If there are excavated areas along the riverbank with a slope greater than 1:1, these slopes may require additional excavation/grading prior to placement of topsoil and subsequent revegetation activities. The need for laying back the slope to less than 1:1 prior to backfill will be determined by the government representative. Restoration of slopes in excess of 1:1 will necessitate use of erosion control blankets.

3.4.1.3 Parking and Roadway Areas

Excavated areas within the proposed parking and roadway areas of the park will be backfilled with common fill and compacted to within 12 inches of the finished grade. Common fill will be placed in layers, not to exceed 12 inches loose measure, and compacted to at least 90% of the maximum dry density as determined by laboratory test ASTM D1557. The common fill, subgrade surface will be proof compacted with at least 4 coverages by a compactor in preparation of structural fill placement. Any soft areas identified during proof compaction will be removed and replaced with structural fill. Structural fill will be placed in the remainder of the excavation in layers, having a maximum thickness of 8 inches loose measure, and compacted to at least 95% of the maximum dry density as determined by laboratory test ASTM D1557.

3.4.2 Seeding and Planting

The final revegetation requirements and responsibilities for the park will be determined during the pre-construction meeting. Implementation of seeding and planting activities will be based on the amount of time required to establish uniform growth before the end of the current growing season and anticipated renovation requirements by the city.

If it is determined during the pre-construction meeting that the city is planning to upgrade surfaces within the picnic areas to sod, the cleanup/construction contractor will not be required to seed the picnic areas. In that case, erosion controls will be installed before turning the site back over to the city. Subsequent maintenance of picnic area erosion controls and revegetation of the picnic areas will be the responsibility of the city. If hydroseeding of the picnic areas is consistent with the city's planned renovations, requirements for seeding and planting are provided below.

After topsoil has been placed, seeding and planting will commence along the riverbank and in the picnic areas of the park. No seeding or planting will be

performed in parking or roadway areas. All backfilled picnic and riverbank areas will be hydro-seeded with a mixture of native grasses and vegetation in accordance with the residential landscaping specifications (CDM 2003d).

Trees removed prior to, or during excavation activities will be replaced with trees of similar type and number. Efforts will be made to plant replacement trees in the same general vicinity from where the original was removed. Replacement trees will be provided and planted in accordance with government specifications (CDM 2003d).

Any vegetation damaged during construction activities will be replaced with items similar in type, and less than or equal to in value. Any replaced items will be restored in accordance with government specifications (CDM 2003d). The cleanup/ construction contractor will be responsible for watering, mowing, and fertilizing seeded areas until a uniform growth has been firmly established.

3.4.3 Replacement of Temporarily Displaced Items

All items that were temporarily removed, decontaminated, and displaced in order to facilitate access to contaminated soils during removal activities will be re-installed. These items will be reassembled, as appropriate, and returned to their place of origin within the park. Items will be inspected for damage as a result of salvage, removal, or restoration activities. Damaged items will be repaired by the cleanup/construction contractor, or replaced as necessary.

3.4.4 Sedimentation and Erosion Control

Prior to demobilization, all erosion controls installed by the cleanup/construction contractor will be inspected. Erosion controls that are no longer necessary will be removed. In those areas of the site where erosion controls are still necessary, these controls will be enhanced as necessary using staked hay bales and silt screen fabric. All sedimentation and erosion controls will be installed and maintained in accordance with government specifications (CDM 2003c).

3.5 Demobilization

Once all restoration activities are complete, a final site inspection will be performed. The final site inspection will be performed by CDM oversight personnel, with representatives from Volpe, the city, and the cleanup/construction contractor in attendance. A site walk will be performed in all restored areas of the park to verify park items have been re-installed or replaced, as appropriate; that seeding and planting restoration requirements have been met; that any remaining erosion controls left on site are sufficient; and that the park has been restored to a condition suitable to the city. Any deficiencies identified during the final inspection will be corrected by the cleanup/construction contractor, as appropriate.

After deficiencies identified during the final inspection are addressed, all temporary construction and decontamination facilities will be dismantled and removed from the

site. Similarly, all removal or restoration related equipment will be decontaminated and removed and the park will be cleaned of any remaining construction debris.

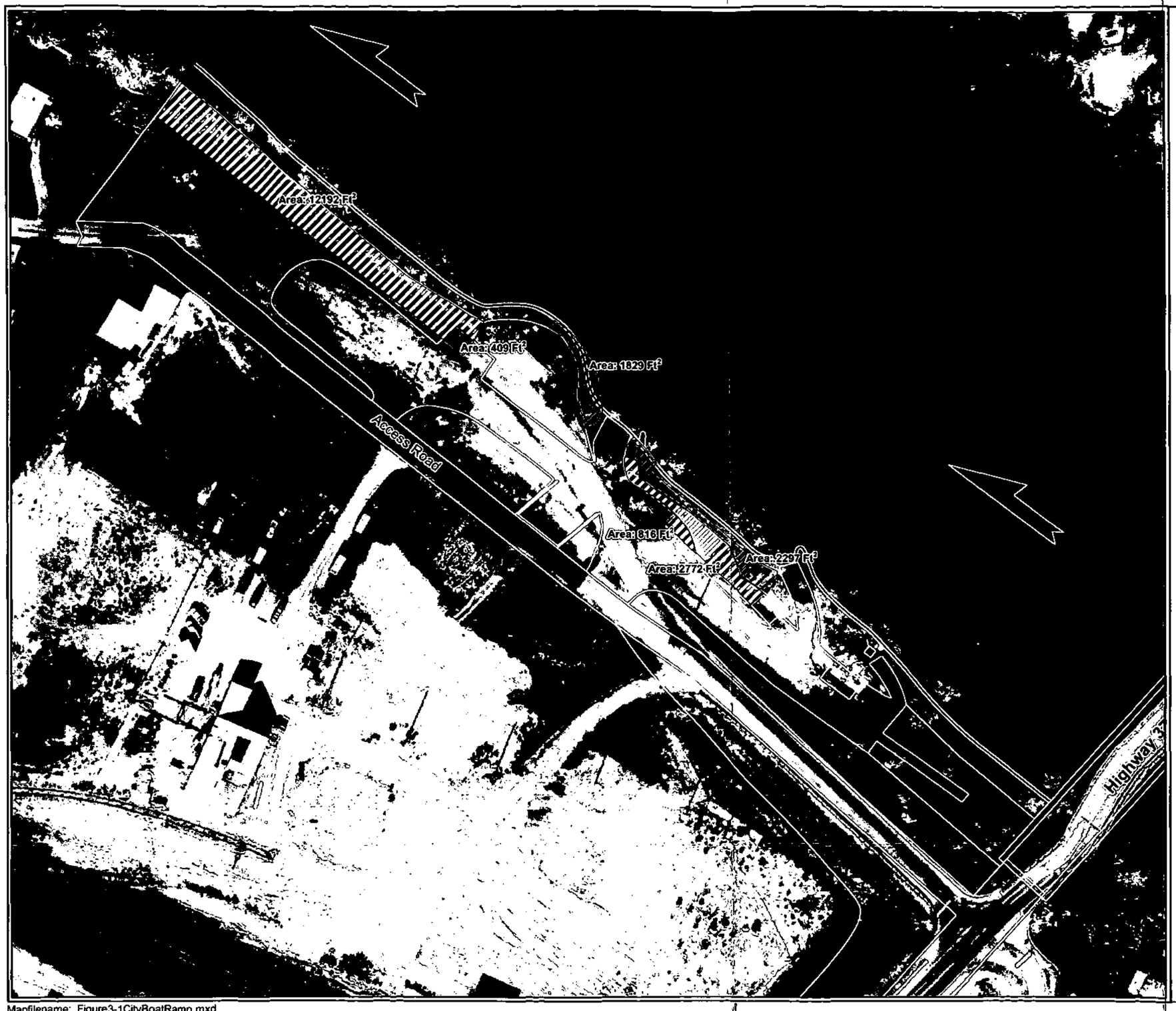


Figure 3-1
Excavation and Restoration Plan
Riverside Park
Libby, Montana

Legend

Minimum Excavation Limits

- Picnic (14,964 sq ft)
- Riverbank (4,126 sq ft)
- Roadway/Parking (1,225 sq ft)

Note: Excavation limits subject to change based on pre-construction characterization activities.

N
W E
S

Feet
0 50 100 200

CDM

Mapfilename: Figure3-1CityBoatRamp.mxd

Section 4
Sample Analysis and Data Validation

All soil samples will be prepared for analysis following the close support facility (CSF) soil preparation plan (CDM 2003b). The analytical program that will be used for identifying LA in soils will be determined following the current performance evaluation study being conducted by the EPA. Once a determination is made regarding the analytical approach, this work plan will be amended. EPA is currently developing data validation criteria for soil sample results. When these procedures are established, the CSS Revision 1 SAP will be amended to include these procedures.

When sample data packages are received, the Response Action Contract (RAC) Region VIII project manager (PM) will coordinate the data validation and entry of qualifiers added during validation to results in the Libby project database.

Section 5
References

ASTM D1557. Standard Test Method for laboratory Compaction Characteristics of Soil using Modified Efforts.

CDM 2003a. Final Sampling and Analysis Plan, Remedial Investigation, Contaminant Screening Study, Revision 1. May

_____ 2003b. Soil Preparation Plan, Remedial Investigation, Contaminant Screening Study, Libby Asbestos Site, Operable Unit 4. April

_____ 2003c. Residential Earthwork Specifications, Section 02200. Libby Asbestos Project.

_____ 2003d. Residential Landscape Specifications, Section 02935. Libby Asbestos Project.

EPA 2000. Sampling and Quality Assurance Project Plan Revision 1 for Libby, Montana, Environmental Monitoring for Asbestos. Baseline monitoring for Source Area and residential Exposure to Tremolite-Actinolite Asbestos Fibers. January

NIOSH 1994. Asbestos (bulk) by PLM. Method 9002, Issue 2. August.

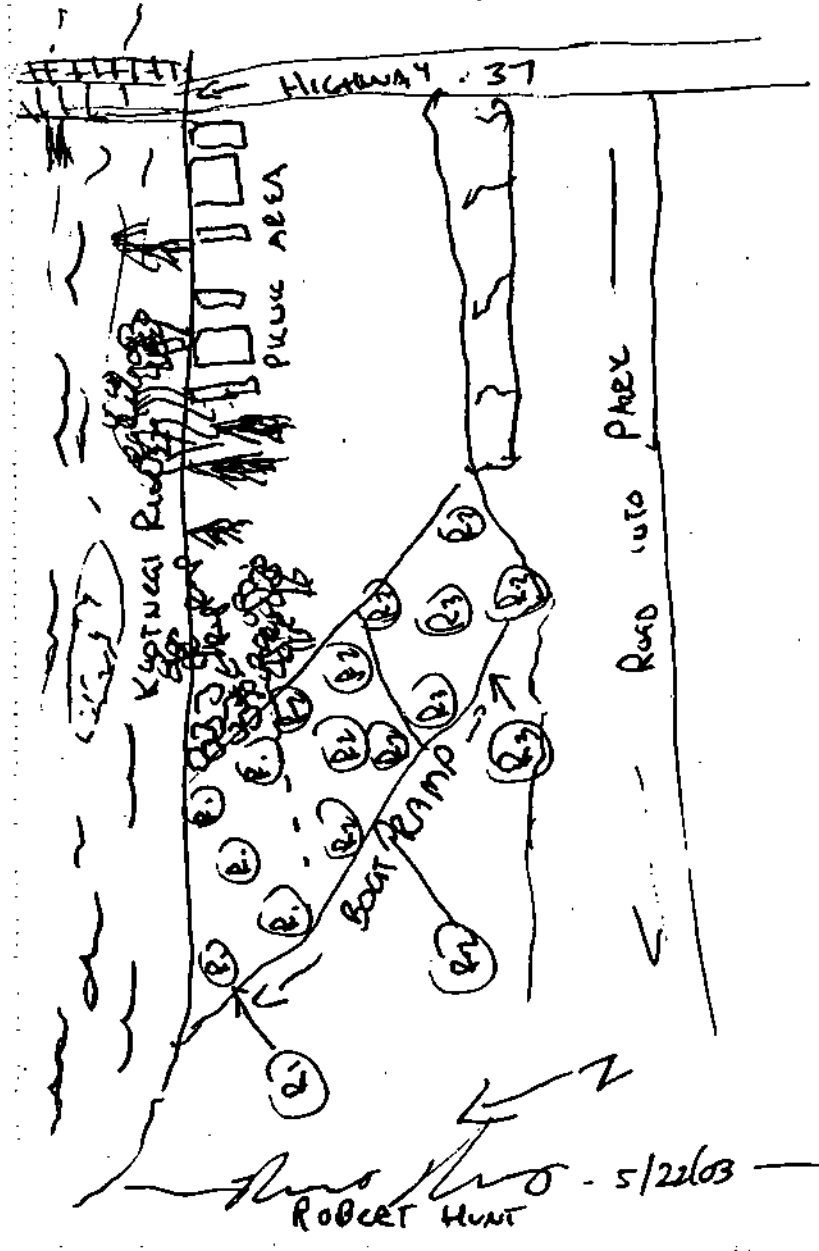
Volpe 2002. Libby Asbestos Project Comprehensive Residential Removal Plan. Revision 2. December.

Attachment 1
Logbook Pages from the May 2003 Riverside Park Site Visit

CDM

6 CITY OF LIBBY WATERFRONT PARK T2A05220 3 AD

THURSDAY May 22, 2003



ROBERT HUNT - 5/22/03

7 CITY OF LIBBY WATERFRONT PARK T2A05220 3 AD

THURSDAY May 22, 2003

1125 - COLLECT SAMPLE - TOP OF RAMP

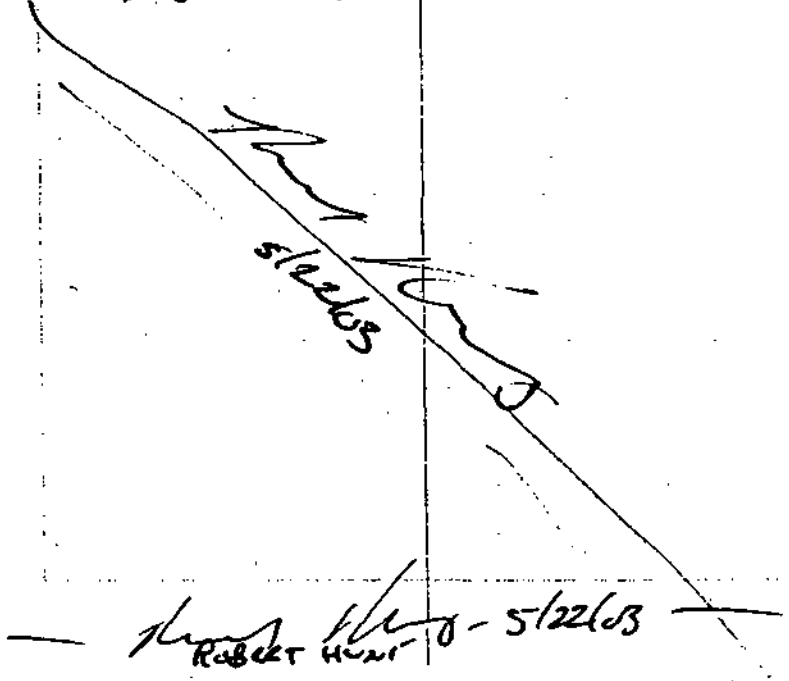
1-07853 SP- 121242

PSDI - C01200 COC - 005226

1126 - COLLECT DATA POINTS WITH TRIMBLE UNIT @ SAMPLING LOCATION CENTER, — RH — 5/22/03 —

GPS ID - T2A05223

* SOIL SAMPLES COLLECTED BY DAVE MECHENICH - SAMPLING EQUIPMENT WAS DECONNED WITH D.I WATER BETWEEN SAMPLING LOCATIONS — RH 5/22/03 —



ROBERT HUNT - 5/22/03

4 LIBBY 28 FOREST RD BD - 002534 MONDAY 5/19/03

1530 RETURN TO CSS OFFICE ORIGINAL IFF UPDATED TO REFLECT ATTIC SURVEY AND ADDITIONAL INFORMATION FROM LANDOWNER END OF FIELD NOTES FOR 5/19/03

5/19/03

CITY OF LIBBY WATERFRONT PARK TZA052203 AD 5

THURSDAY MAY 22, 2003

NOTETAKER: ROBERT HUNT
PERSONNEL: CSM - BOB HUNT & DAVE MCCARROP
WEATHER: cloudy 50° - forecast - high in 60° - partly cloudy
PPE Level D modified — RH 5/22/03
INSTRUMENTS: TRIMBLE G.P.S UNIT
CALIBRATIONS: NA — RH 5/22/03 —
ACTIVITIES: collecting 6 soil samples @ Boat Ramp (planned) by Hwy 37 BRIDGE (CITY OF LIBBY WATERFRONT PARK)
0940 - Arrive @ sampling location meet Dave Schneider & Shawn Olweiler (CSM) Courtney Zanolg (Udpe) & EE representatives - discuss sampling locations @ proposed Boat Ramp
1105 - COLLECT SAMPLE ON RAMP By Road
1-07851 SP- 121240
FSDS 001200 COC 005226
1115 COLLECT SAMPLE MIDDLE OF Ramp
1-07852 SP- 121241
FSDS 001200 - COC 005226
— RH 5/22/03 —
— Robert Hunt - 5/22/03 —
ROBERT HUNT

Attachment 2
Field Sample Data Sheet for Soil

CDM

Sheet No.: P1-S-001200

PHASE 1 INVESTIGATION
LIBBY, MONTANA FIELD SAMPLE DATA SHEET
SOIL-LIKE MATERIALS

Scenario No.: NA Field Logbook No: 100210 Page No: 5-C Sampling Date: 5/22/03
Address: Highway 37 By Bridge Owner/Tenant: City of Libby
Business Name: City of Libby Waterfront Park
Land Use: Residential School Commercial Mining Roadway (Other) (Recreational - Park)
Sampling Team: (CDM) MACTEC Other _____ Name(s): Robert Hunt
Dan Mickelson

Data Item	Sample 1	Sample 2	Sample 3
Index ID	1-07851	1-07852	1-07853
Location ID	SP- 121240	SP- 121241	SP- 121242
Sample Group	paperby	paperby	paperby
Location Description	ON Ramp → Concrete pad area closest to river	ON Ramp → middle → Asphalt area	ON Ramp Top - Asphalt Area
Category (circle)	(FS) FD _____	(FS) FD _____	(FS) FD _____
Matrix Type (circle)	Mining Waste Subsurface Soil (Surface Soil) Fill Other _____	Mining Waste Subsurface Soil (Surface Soil) Fill Other _____	Mining Waste Subsurface Soil (Surface Soil) Fill Other _____
Type (circle)	Grab (Comp. # subsamples 5)	Grab (Comp. # subsamples 5)	Grab (Comp. # subsamples 5)
Sample Time	1105	1115	1125
Top Depth (in.)	0	0	0
Bottom Depth (in.)	1	1	1
Map Location	R1	R2	R3
Field Comments	Ramp - Concrete pad closest to River See sketch Visible Vermiculite ~~not~~ trace	Ramp - middle Asphalt Drive area See sketch Visible Vermiculite	Ramp - Top Asphalt Drive See sketch Visible Vermiculite
QC (Field Team) Dem Entered (LFO) ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____	Volpe: Entered ____ Validated ____

vs 051603

BP

EMSL Analytical, Inc.
107 West 4th Street, Libby, MT 59923
Phone: (406) 293-9066 Fax: Email: mobileasbestoslab@emsl.com

Attn: Anni Autio
CDM Federal Programs Corp.
One Cambridge Ctr.
50 Hampshire St.
Cambridge, MA 02142
Fax: (617) 452-8257 Phone: 617-452-6257
Project: 005228
samples collected 5/22/2003

Customer ID: DRES51
Customer PO:
Received: 05/22/03 11:47 AM

EMSL Order: 270300545
EMSL Project ID: Libby, Montana EPA Project
Analysis Date: 5/22/2003

Polarized Light Microscopy (PLM) Performed on Soil Samples by NIOSH Method 9002, Issue 2

City of Libby Waterfront Park

Sample	Location	Appearance	Treatment	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos % Type
1-07851 270300545-0001	Concrete pad area Closest to River	Brown Non-Fibrous Heterogeneous	None CDM LAB: EMSL27	1%	Cellulose	99%	Non-fibrous (other)	None Detected
1-07852 270300545-0002	middle Asphalt area	Brown Non-Fibrous Heterogeneous	None CDM LAB: EMSL27	<1%	Cellulose	100%	Non-fibrous (other)	None Detected
1-07853 270300545-0003	on ramp top Asphalt area	Brown Non-Fibrous Heterogeneous	None CDM LAB: EMSL27	<1%	Cellulose	99% 1%	Non-fibrous (other) Mica	None Detected

Analyst(s)

Anne Marie Gooden (3)

or other approved signatory

THIS IS THE LAST PAGE OF THE REPORT.

Attachment 3
Soil Sample Results

INTERNAL CHAIN OF CUSTODY

5/22/2003 11:49:39 AM

Order ID: 270300545

Attn: *Anni Aulio*
CDM Federal Programs Corp.
One Cambridge Ctr.
50 Hampshire St.
Cambridge, MA 02142
Fax: 617-452-8257 Phone: 617-452-6257

Project: 005226
samples collected 5/22/2003

Customer ID: DRES51
Customer PO:
Received: 05/22/03 11:47 AM

EMSL Order: 270300545
EMSL Project ID: Libby, Montana EPA Project

Test: PLM NIOSH 9002 **Matrix** Soils **TAT:** 6 Hour **Qty:** 3

Acct Sts: **Slsprsn:** rdemaio

Logged: TSWENSON **Date:** 5-22-03
Prepped: Amg **Date:**
Analyzed: **Date:**
Data Entry: **Date:**
Screened: **Date:**
Mailed: **Date:**

☐ Exempt from prep charge
☐ Exempt from lab opening fee
☑ Exempt from layer/aliquot charges

Special Instructions

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270300545	270300545-0001	1-07851		5/22/2003 5:47:33 PM
270300545	270300545-0002	1-07852		5/22/2003 5:47:33 PM
270300545	270300545-0003	1-07853		5/22/2003 5:47:33 PM

IndexID	IndexSuffixID	Lab ID	Appearance	Analytical Method	Date Received	Date Analyzed	Q_Tr-Ac	Tremolite-Actinolite (%)	Q_CH
1-07851		270300545-0001	Brown, Non-Fibrous, Heterogeneous	NIOSH 9002	5/22/03	5/22/03	ND		ND
1-07852		270300545-0002	Brown, Non-Fibrous, Heterogeneous	NIOSH 9002	5/22/03	5/22/03	ND		ND
1-07853		270300545-0003	Brown, Non-Fibrous, Heterogeneous	NIOSH 9002	5/22/03	5/22/03	ND		ND

Chrysotile (%)	Type	Q_Other	Other Amphiboles (%)	NonAsbestos Fibrous (%)	Comments	LAB	QATYPE	FILE	Entered
		ND		1	005226 samples collected 5/22/2003	EMSL27		270300545PLM.xls	5/22/03
		ND		0.0001	005226 samples collected 5/22/2003	EMSL27		270300545PLM.xls	5/22/03
		ND		0.0001	005226 samples collected 5/22/2003	EMSL27		270300545PLM.xls	5/22/03

EMSL Analytical, Inc.
107 West 4th Street, Libby, MT 59923
Phone: (406) 293-9066 Fax: Email: mobileasbestoslab@emsl.com

Attn: Anni Autio
CDM Federal Programs Corp.
One Cambridge Ctr.
50 Hampshire St.
Cambridge, MA 02142
Fax: (617) 452-8257 Phone: 617-452-6257
Project: 005226
samples collected 5/22/2003

Customer ID: DRES51
Customer PO:
Received: 05/22/03 11:47 AM

EMSL Order: 270300545
EMSL Project ID: Libby, Montana EPA Project
Analysis Date: 5/22/2003

Polarized Light Microscopy (PLM) Performed on Soil Samples by NIOSH Method 9002, Issue 2

Sample	Location	Appearance	Treatment	Non-Asbestos %	Fibrous	Non-Asbestos %	Non-Fibrous	Asbestos % Type
1-07851 270300545-0001		Brown Non-Fibrous Heterogeneous	None CDM LAB: EMSL27	1%	Cellulose	99%	Non-fibrous (other)	None Detected
1-07852 270300545-0002		Brown Non-Fibrous Heterogeneous	None CDM LAB: EMSL27	<1%	Cellulose	100%	Non-fibrous (other)	None Detected
1-07853 270300545-0003		Brown Non-Fibrous Heterogeneous	None CDM LAB: EMSL27	<1%	Cellulose	99% 1%	Non-fibrous (other) Mica	None Detected

Analyst(s)
Anne Marie Gooden (3)

or other approved signatory

THIS IS THE LAST PAGE OF THE REPORT.

Polarized Light Microscopy (PLM) Performed on Soil Samples by NIOSH Method 9002, Issue 2

Client: CDM Federal Programs Corp.
Logged: 5/22/03
TAT: 6 Hour
Address: One Cambridge Ctr.
50 Hampshire St.
Cambridge, MA 02142
Date/Time Due: 5/22/2003 5:47:33 PM
Fax: (617) -45-2-8257
Project: Libby, Montana EPA Project 005226
samples collected 5/22/2003

Special Instructions

Order Number
270300545

Appearance	Treat	Asbestos Results	Fibrous	Non-Fibrous	Optical Properties
1 Brown, 2 Gray, 3 Tan, 4 White, 5 Red, 6 Various, 7 Black, 8 Silver, 9 Blue, 10 Yellow; 1 Fibrous, 2 Non-Fibrous, 3 Other; 1 Homogeneous, 2 Heterogeneous, 3 Other, 4 Layers (#)	1 Teased, 2 Crushed, 3 Dissolve, 4 Ashed	1 Chrysotile, 2 Amosite, 3 Anthophyllite, 4 Tremolite, 5 Actinolite, 6 Crocidolite	7 Cellulose, 8 Glass, 9 Min. Wool, 10 Synthetic, 11 Other, 12 Wollastonite, 13 Hair	14 Quartz, 15 Mica, 16 Gypsum, 17 Cal. Carbonate, 18 Matrix, 19 Perlite, 20 Other	I, II, M, S, P, B, Fiber Color, E

Sample	Appearance	Treatment	Asbestos Results	% of Asbestos	Other Fibrous Type	Other Fibrous %	Non-Fibrous Type	Non-Fibrous %	Non-Asb. Char.	Optical Properties
1-07851	1	none		0	7	1	20	99	undulose extinction	I / II
	2								ribbon like	M / S
	2									P / B / Fiber Color / E
1-07852	1	none		0	7	<1	20	100	undulose extinction	I / II
	2								ribbonlike	M / S
	2									P / B / Fiber Color / E
1-07853	1	none		0	7	<1	20	99	undulose extinction	I / II
	2						15	1	ribbonlike	M / S
	2									P / B / Fiber Color / E
							20			I / II
										M / S
										P / B / Fiber Color / E
							20			I / II
										M / S
										P / B / Fiber Color / E
							20			I / II
										M / S
										P / B / Fiber Color / E
							20			I / II
										M / S
										P / B / Fiber Color / E
							20			I / II
										M / S
										P / B / Fiber Color / E

Analyst: Amgoodeu Date: 5-22-03 Computer: ____________ Date: ____________

Chain of Custody Record
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Libby Asbestos Investigation

1703005 45 PLM

No.005226

Send to: EMSL

via: ☑ hand delivery ☐ shipped

Sample Placed in Cooler/Bag	Index ID	Sample Date	Sample Time	Sample Matrix (S=Soil, W=Water, D=Dust, A=Air, B=Bulk Insulation)	Sample Type (G=Grab, C=Composite)	Volume (L) or Area (cm²)	Filter Pore Size (0.8µm or 45µm)	Analysis Request*	Comments	Sample Received by Lab
☑	1-07851	5/22/03	1105	S	C	NA	NA	PLM	—	☑
☑	1-07852	↓	115	↓	↓	↓	↓	↓	—	☑
☑	1-07853	↓	112.5	↓	↓	↓	↓	↓	—	☑
☐										☐
☐										☐
☐										☐
☐										☐
☐										☐
☐										☐
☐										☐

5/22/03

ROBERT HUNT

*Phase I: Air: preparation method EPA/540/2-90/005a, analytical method PCM (by NIOSH 7400), TEM (by ISO 10312 and AHERA). Dust: preparation method ASTM D5755-95, analytical method ISO 10312. Solid PLM: preparation and analysis by ISSI-LIBBY-01/NIOSH 9002. Soil IR: preparation and analysis method ISSI-LIBBY-02. Soil TEM: preparation method EPA/540/R-97/028, analytical method ISSI-LIBBY-01/ISO 10312. Phase II: Personal Air, Stationary Air: PCM (by NIOSH 7400), TEM (by Modified ISO 10312 – Phase 2 QAPP, approved 2/01), or TEM (AHERA) method. Bulk Insulation and Soil: PLM. Dust Samples: TEM (by ISO 10312). CSS: Soil: preparation by ISSI-LIBBY-01, analytical method PLM; Water: preparation by EPA 100.1, analytical method ISO 10312. Removal Action analytical methods: Particle size analysis (PSA) by ASTM D-422; Plasticity by ASTM D-4318; Moisture content by ASTM D-2216; Compaction by ASTM D-1557.

Total Number of Samples 3

END OF SUBMITTAL

Sample split provided to CDM. Remainder of sample to be archived in Westmont Long 5-22-03

Additional Comments: need results by COB 5/21/03

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
CDM	5/22/03 1135	Lisa Swenson EMSL	5-22-03 1145	OK accepted
Lisa Swenson EMSL	5-22-03 1305	Dan Waugh CDM	5-22-03 1305	OK accepted

Ma[redacted] 200[redacted] [redacted] C[redacted]: Pi[redacted]tain[redacted] Sam[redacted]poord[redacted]; Yel[redacted] Rete[redacted]by laboratory; White - included in analytical report [redacted] Page [redacted] of [redacted]

07-21-2003 11:14 FROM-CDM Federal Helena 406-495-1025 T-725 P.001/001 F-171

Chain of Custody Record
U.S. Environmental Protection Agency, Region VIII
999 18th Street, Suite 300
Denver, CO 80202-2413

Libby Asbestos Investigation

270300545 PLM

No.005226

Send to: EMSL

via: ☑ hand delivery ☐ shipped

Sample Placed in Cooler/Bag	Index ID	Sample Date	Sample Time	Sample Matrix (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Sample Type (G=Grab; C=Composite)	Volume (L) or Area (cm^2)	Filter Pore Size (0.8µm or 45µm)	Analysis Request*	Comments	Sample Received by Lab
☑	1-07851	5/22/03	1105	S	C	NA	NA	PLM	—	☑
☑	1-07852	↓	115	↓	↓	↓	↓	↓	—	☑
☑	1-07853	↓	1125	↓	↓	↓	↓	↓	—	☑
☐										☐
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☐										☐

5/22/03

ROBERT HUNT

*Phase I: Air: preparation method EPA/540/2-90/005a, analytical method PCM (by NIOSH 7400), TEM (by ISO 10312 and AHERA). Dust: preparation method ASTM D5755-95, analytical method ISO 10312. Solid PLM: preparation and analysis by ISSI-LIBBY-01/NIOSH 9002. Soil IR: preparation and analysis method ISSI-LIBBY-02. Soil TEM: preparation method EPA/540/R-97/028, analytical method ISSI-LIBBY-01/ISO 10312. Phase II: Personal Air, Stationary Air: PCM (by NIOSH 7400), TEM (by Modified ISO 10312 – Phase 2 QAPP, approved 2/01), or TEM (AHERA) method. Bulk Insulation and Soil: PLM. Dust Samples: TEM (by ISO 10312). CSS: Soil: preparation by ISSI-LIBBY-01, analytical method PLM; Water: preparation by EPA 100.1, analytical method ISO 10312. Removal Action analytical methods: Particle size analysis (PSA) by ASTM D-422; Plasticity by ASTM D-4318; Moisture content by ASTM D-2216; Compaction by ASTM D-1557.

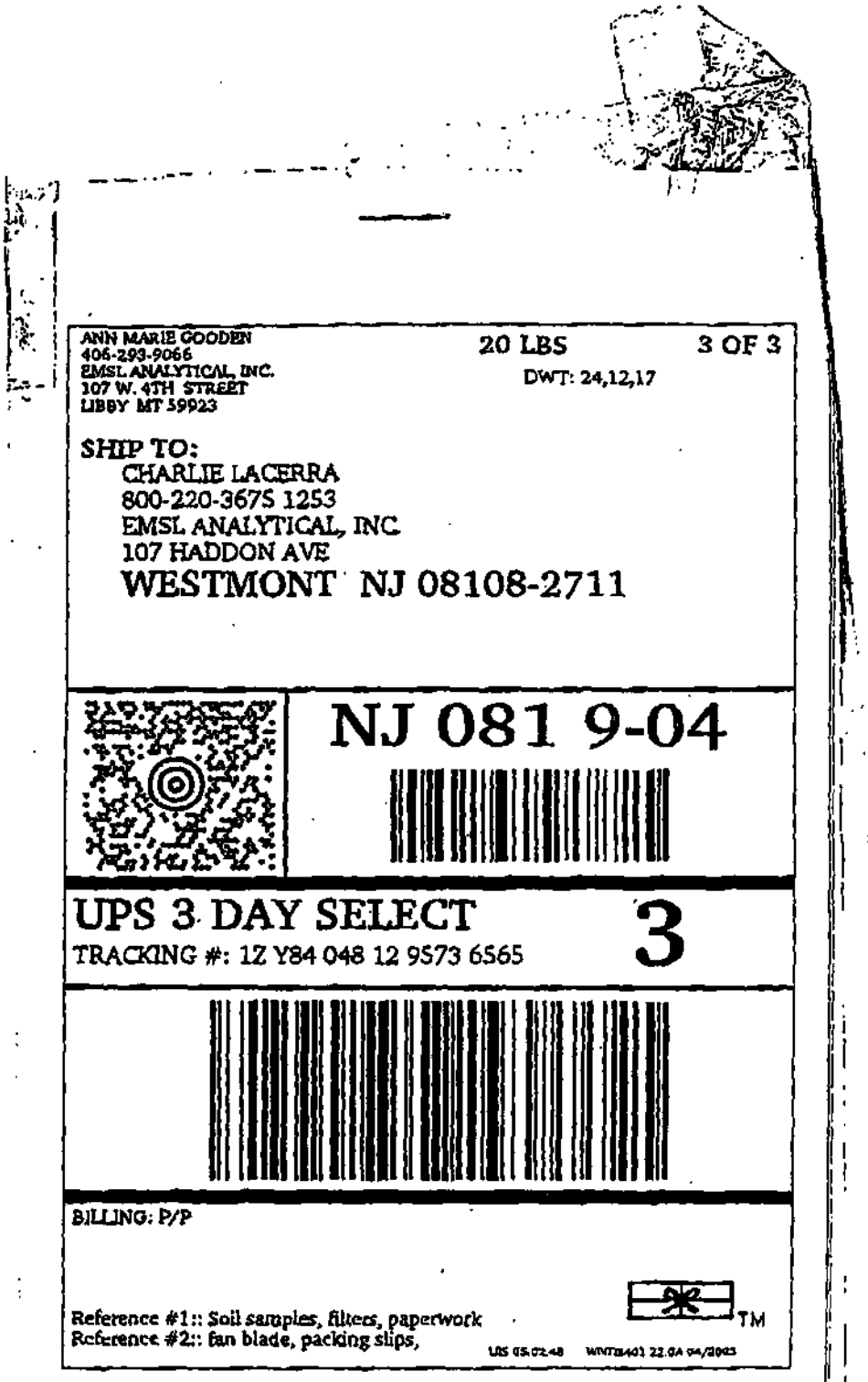
Total Number of Samples 3

END OF SUBMITTAL

Additional Comments: need results by COB 5/22/03

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
[signature] -OM	5/22/03 / 1135	Lisa Swenson EMSL	5-22-03 1145	OK as received
M Wooden EMSL	6-7-03/0430	L. Moore emsl	6-12-03/1100	o/c

May 16, 2003 Copies: Pink - Retained by Sample Coordinator; Yellow - Retained by laboratory; White - Included in analytical report Page ___ of ___



ANN MARIE GOODEN
406-293-9066
EMSL ANALYTICAL, INC.
107 W. 4TH STREET
LIBBY MT 59923

20 LBS 3 OF 3
DWT: 24,12,17

SHIP TO:
CHARLIE LACERRA
800-220-3675 1253
EMSL ANALYTICAL, INC
107 HADDON AVE
WESTMONT NJ 08108-2711

NJ 081 9-04

UPS 3 DAY SELECT 3
TRACKING #: 1Z Y84 048 12 9573 6565

BILLING: P/P

Reference #1:: Soil samples, filters, paperwork
Reference #2:: fan blade, packing slips,

TM

US 05.02.48 WWTB401 22.0A 04/2003